

**SOLID STATE SYNTHESIS OF LITHIUM ION
BATTERY CATHODE MATERIAL
Abstract**

[0038] Single-phase lithium-transition metal oxide compounds containing cobalt,
5 manganese and nickel can be prepared by wet milling cobalt-, manganese-, nickel- and
lithium-containing oxides or oxide precursors to form a finely-divided slurry containing
well-distributed cobalt, manganese, nickel and lithium, and heating the slurry to provide a
lithium-transition metal oxide compound containing cobalt, manganese and nickel and
having a substantially single-phase O₃ crystal structure. Wet milling provides
10 significantly shorter milling times than dry milling and appears to promote formation of
single-phase lithium-transition metal oxide compounds. The time savings in the wet
milling step more than offsets the time that may be required to dry the slurry during the
heating step.